METHODS OF PROVIDING FOR EXPENSES OF OBTAINING NEW BUSINESS BY LIFE INSURANCE COMPANIES

It is a well-known fact that new business is obtained by life insurance companies at considerable expense, involving commissions to agents and fees to medical examiners. Attempts have been made to lessen this expense, but are not likely to have a decided effect in the near future. It seems to be good public policy to extend insurance, even at considerable cost, among persons too careless to take the initiative in protecting their dependents. At any rate, it must be expected that the writing of new life insurance business during a year will remain much more expensive than the handling of an equal amount of old business during the same time.

It should perhaps be stated that the term "expense" as used in this paper does not include the payment of death claims, but means the expense of conducting business.

In dealing with the subject of initial expenses, the question at once arises as to the basic principle on which these expenses are to be met. The expense of conducting business is a very different factor from that of insurance risk, where death losses are distributed over a group of persons on certain principles of mutuality. There seems to be a fair consensus of opinion among insurance authorities that, in so far as it is feasible, each policyholder should pay the expense of placing his policy on the books of the company. Indeed, there is sufficient agreement on this point so that it does not seem inappropriate to state in a textbook for beginners in the study of insurance that "an equitable system of loading must require every policyholder to pay the expenses which his policy costs the company, as nearly as this amount can approximately be determined."[1]

To carry out this principle requires careful consideration of methods of loading, and of computing the reserve liability of a company; for the ideas back of level net premium reserves ignore the condition that expenses are higher in the first policy year than in subsequent years. This fact was emphasized by the statements of eminent American actuaries as early as 1904, to the effect that level net premium valuation laws had strangled young companies

[1] S. S. Huebner, *Life Insurance* (Appleton, 1915), p. 214.

that might have become good companies, and that the older companies today would not be in existence if the level net premium reserve had been required by law from the first few years of their existence.[2]

While there is fair agreement as to the principle stated above in regard to the allocation of the expense of new business, there is considerable diversity in the methods in use in different countries, and in the different states of the United States in putting the principle into practical operation. In the United States, the methods of loading for the expenses of new business that stand out most prominently are closely associated either with the modified preliminary term method of valuation, or with the select and ultimate method. The merits and demerits of these methods have been the subject of lively debate[3] by both European and American actuaries. While it does not seem possible in brief space to give a satisfactory summary of the points made in these debates, it may be said that Mr. M. M. Dawson presented a paper in 1908 before the Institute of Actuaries advocating the select and ultimate method. He had previously presented the method before the Actuarial Society of America (1903), but without especially advocating it. The discussion of these papers, to which reference is made above, brought out the opinions of leading actuaries on the subject and showed that in a comparison of the two methods there were some good arguments for each of them. Both methods have, with limitations, the approval of high actuarial authorities, and the weak features of both have been pretty ably set forth, so that knowledge exists as to where safeguards should be provided.

In the textbook from which the principle stated above is quoted, there are given[4] some criticisms of the preliminary-term and modified preliminary-term methods of valuation and a defense of the select and ultimate method. As certain of these criticisms are likely to give an incorrect notion of the operation of these methods, they call for some comment.

Before proceeding to examine the views expressed in these criticisms, it should perhaps be pointed out that there is some danger of confusion in the use of the term "reserve" when employed as it is in the discussion on which it is proposed to com-

[2] D. P. Fackler, *Transactions of the Actuarial Society of America,* vol. VIII (1904), p. 78; Emory McClintock, *ibid.,* p. 80.

[3] *Journal of the Institute of Actuaries,* vol. 42 (1908), pp. 425-472; *Trans. Actuarial Soc. Amer.,* vol. VII, p. 418; *ibid.,* vol. VIII, pp. 67-83.

[4] *Loc. cit.,* pp. 222-226.

ment. On the one hand, we find for a definition of the term "reserve," on page 193, the statement that "the word 'reserve,' however, has come to have a technical meaning in life insurance, due to the fact that most of the states have passed laws requiring some definite method of valuing this fund, and when the term is now used this technical or legal reserve is ordinarily meant." On the other hand, the illustrative calculations shown in the book in the development of the reserve idea treat of the level net premium terminal reserves. One thoroughly familiar with the subject before reading the book has perhaps little or no doubt that the term "reserve" as used on pp. 222-223 means "level net premium terminal reserve," but the discussion would be clarified by the simple statement that the term "reserve" is being thus used in this connection. With this meaning, the reader very naturally asks himself why the author specifies, on page 226 in his defense of the select and ultimate method, that this method permits the company to borrow from "full net premium reserve" instead of using simply the term "reserve" as he did in the criticisms. It is obviously very important in such a criticism not to confuse the use of the term "reserve" to mean "level net premium reserve" and to mean something else, such as legal reserve, for it is a serious matter if legal reserves or if adequate reserves are not being held as a liability, but it is not necessarily a reflection on the soundness or efficiency of a company that level net premium reserves based on certain tables of mortality and certain rates of interest are not being held as a liability.

Limitations of the use of level net premium valuations are well recognized by insurance authorities.[5] It may be worth while saying at this point that level net premium reserves may be in a certain sense a mechanical or mathematical ideal for a hypothetical company operated without expense, but they are not properly looked upon as an ideal when we are seeking a true valuation as a test of solvency for the actual company that must pay the expenses of conducting business as well as death claims. Bearing on this point, Mr. Fackler made the following statement: "We all know that the true system is a carefully modified gross valuation, in which not alone the savings in the earlier year's mortality but also the unequal distribution of expenses should be con-

[5] Nichols, "The Limitations of a System of Net Valuations," *Transactions of the Second International Congress of Actuaries*, p. 161; Moir, "Valuation and Distribution," *Trans. Actuarial Soc. Amer.*, vol. X, p. 179.

sidered."[6] On account of their convenience for some purposes, we easily and thoughtlessly fall into the habit of using level net premium reserves for purposes for which they are far from ideal.

The position is taken in the textbook to which reference is made that there is a "borrowing from reserve" both in the various forms of preliminary-term valuations and under select and ultimate valuations, but that there is a difference between the two in that what is borrowed under the select and ultimate method will never have to be repaid because the mortality which would require it will never occur.

To my mind, the methods are much better described, in a brief way, by saying that the definition of legal reserve has undergone changes in different states and countries so as to allow certain deviations from the level net premium reserve. It is the purpose of such changes to adapt valuations to the principle that each policyholder is to pay the expense of putting his policy on the books of the company, and to meet very practical conditions that are almost sure to confront any successful new company.

Under full preliminary-term valuations the purposes are accomplished by making the first year's insurance term insurance, thus releasing for expenses the difference between the net premium for one year and the gross premium. In the case of ordinary life and twenty payment life, this difference is approximately the amount required for initial expenses. For higher priced policies, this difference becomes so large that some kind of limitation of the preliminary-term plan is desirable. It is the theory of the *modified* preliminary-term valuations that a proper measure for initial expenses is the loading under an ordinary life policy, with full preliminary-term method of valuation, and that therefore a higher priced policy such as a twenty year endowment policy may appropriately be preliminary-term only to the extent of an ordinary life policy. More precisely, it is held that for a policy with annual premiums greater than an ordinary life policy, the net premiums shall be formed by making such a level addition to the net premiums for ordinary life, with full preliminary-term valuation, as will cause the policy to be paid-up or mature according to the terms of the contract. The chief effect of the preliminary-term method is simply that the policyholder contributes a much greater loading in the first year and a less amount of loading in

[6] D. P. Fackler, *Trans. Actuarial Soc. America,* vol. VIII, p. 79; *cf.,* M. M. Dawson, *Journal Institute of Actuaries,* vol. 42 (1904), p. 438.

subsequent years than under the level net premium method of valuation. It is the theory of the select and ultimate valuations that proper reserves may be obtained from a select and ultimate table where the select table reflects the experience, in a sort of approximate way, of the companies with persons who recently passed a medical examination for life insurance; but the annual premium used in the calculation of reserves by the prospective method is based on the corresponding ultimate table. This gives a first year terminal reserve much smaller than if the annual premium were based on the select table as are the other quantities that enter the valuation. The chief effect of this scheme of valuation is similar to that under preliminary-term valuations in that the policyholder contributes much more to loading the first year than under a level net premium valuation, even if part of the loading is nominally designated as a saving in mortality.

The methods are thus not well described as processes of borrowing from reserve. They are much better described as methods under which the reserve is adjusted to meet the conditions of obtaining new business; and, at the same time, is maintained at such a value as will insure the fulfilment of the contracts by the company.

In illustrating one of the objections which is brought against preliminary-term methods, there occurs[7] the following statement: "Should the holder of an ordinary life insurance policy valued on the preliminary-term plan die at any time before age 96 the company will not have entirely replenished the reserve borrowed for the purpose of writing its policy and the deficiency must be made up from funds which should be diverted to other uses." For contrast one may well consider the impression obtained from this statement and from the following[8] by the leader of actuarial thought in America during much of his active life: "The use of this system of Dr. Sprague (preliminary-term system) was advocated by me five years ago provided it could be made legal. If it could be made legal and if the reduction in reserves on other forms could be assimilated to the reduction on the ordinary life plan, I should have nothing but praise for that system."

In considering the first of these two statements, we may give a simple illustration that shows how the operation of preliminary-term valuations may have the opposite effect by obviating the

[7] *Loc. cit.*, p. 223.

[8] McClintock, *Trans. Actuarial Soc. America*, vol. VIII, p. 80.

necessity of diverting funds to somewhat questionable purposes. Suppose an ideal case under the American Experience Table of mortality in which each of 100,000 persons of age 35 takes an ordinary life policy to operate with preliminary-term valuations. Let $21.75 be the gross premium per thousand, and $8.65 be the net term premium for this one year. Under the table, the number of deaths of the year is 895 and the interest on $865,000 is such that $895,000 is available at the end of the year to pay all the death claims. Moreover, the difference between $21.75 and $8.65 or $13.10 is available on each policy for acquisition expenses. This is reasonably near what is required under present American methods of writing business, and there has been no borrowing from the funds of the company. Suppose, on the other hand, that these policies had been written on the level net premium valuation basis; then there would be no such amount as $13.10 available from the new entrant and there would be a really significant borrowing from funds belonging to the group of older members, not only for the expenses on the policies of the 895 that die during the year, but also for the expense of the policies of the survivors of the 100,000 insured. This illustration shows clearly that in a large way the preliminary-term method obviates the necessity of borrowing the funds of the older policyholders to write new business. The holding of modified preliminary-term reserves instead of level net premium reserves does not mean that there is a deficiency in adequate reserves. Indeed, there is not the least evidence that, on behalf of the 100,000 persons used in my illustration, a company with insurance on the preliminary-term plan would have to borrow anything from the time the insurance is taken until the last claim is paid. The same statement would hold under the select and ultimate method, if the assumed saving in mortality is experienced.

In all the discussion of this subject, the effective criticism on the one side is not against the modified preliminary-term valuations, but on the danger of carrying modifications too far. On the other side, it is held as pointed[9] out by the distinguished English actuary, Mr. George King, as an objection to the select and ultimate method that "it would be very difficult to change the table to be used in the valuation when valuing by the select and ultimate method, because that would disturb everything." Of course, in theory there is possible infinite variation of the select

[9] *Journal of the Institute of Actuaries,* vol. 42 (1908), p. 454.

and ultimate method by a change in the percentages of ultimate rates used to get select rates. But it is difficult to make the changes in practice. Again, Mr. King, who seemed to favor the preliminary-term method in preference to the select and ultimate method, stated as his principal objection[10] to the select and ultimate method that the allowance for new business depended, not on the cost of the new business, but upon the table of mortality used in the valuation.

To summarize, the question as to which is the better of the two methods is not a one-sided question, as would appear from the textbook whose criticisms we have considered. It does not seem from what has been written and from somewhat intimate personal knowledge of the operation of these methods that either one has a clear advantage over the other. It does seem rather that with a strict adherence to modified preliminary-term valuations, and with the present practice under the select and ultimate method, the evidence is not good that the differences between the two exceed the effect of the somewhat arbitrary factors that enter into these valuations. On the one side, it is important to guard against carrying too far the allowances in preliminary-term valuations by modifications to standards that differ much from modifications to the ordinary life policy; and, on the other side, it is important to make more convenient the way to changes in the select and ultimate standard as soon as experience can be used to show that changes are desirable.

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[10] *Loc. cit.*, p. 453.